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(54) Abstract Title
Beverage containers having drinking straws

(57) A container (44) for a beverage is provided with a closure member (46) covering an access aperture (22). An internally-mounted fitting (24) defines the access aperture (22) and a cylindrical mounting (27) for an outer tubular member (28) which extends to a position adjacent the bottom of the container (44). An inner tubular member (32) is positioned coaxially within the outer tubular member (28) and is supported for telescopic movement by the internal pressure when the access aperture (22) is unsealed by removing the closure member (46) to provide a telescopic drinking straw. A vent (34) is provided to release part of the internal pressure, thereby reducing the speed with which the inner tubular member (32) is extended and a seal 33 is provided between the tubular members. The container may be a deep drawn aluminium can for a carbonated beverage, a bottle with a crown cap (Fig. 1) and a push fitted fitting (24) or a sachet or cardboard carton (Fig 13) to which a fitting supporting the tubular members (28,32) is bonded or adhered. More than one such fitting may be provided.

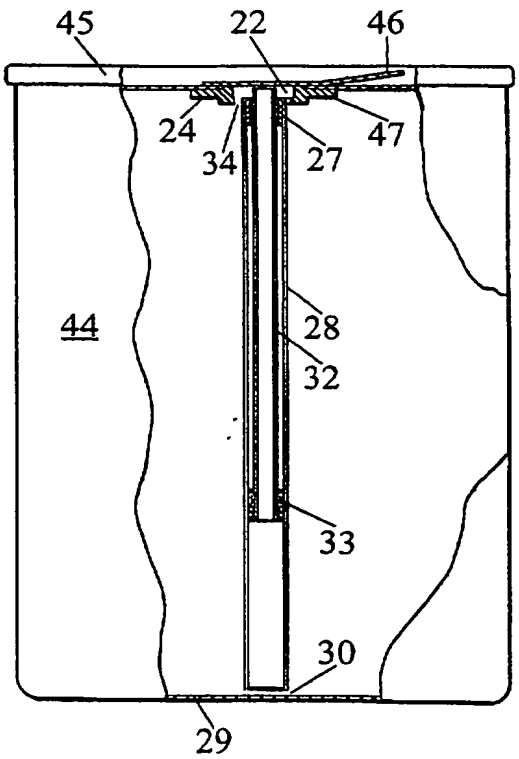

Fig.5.

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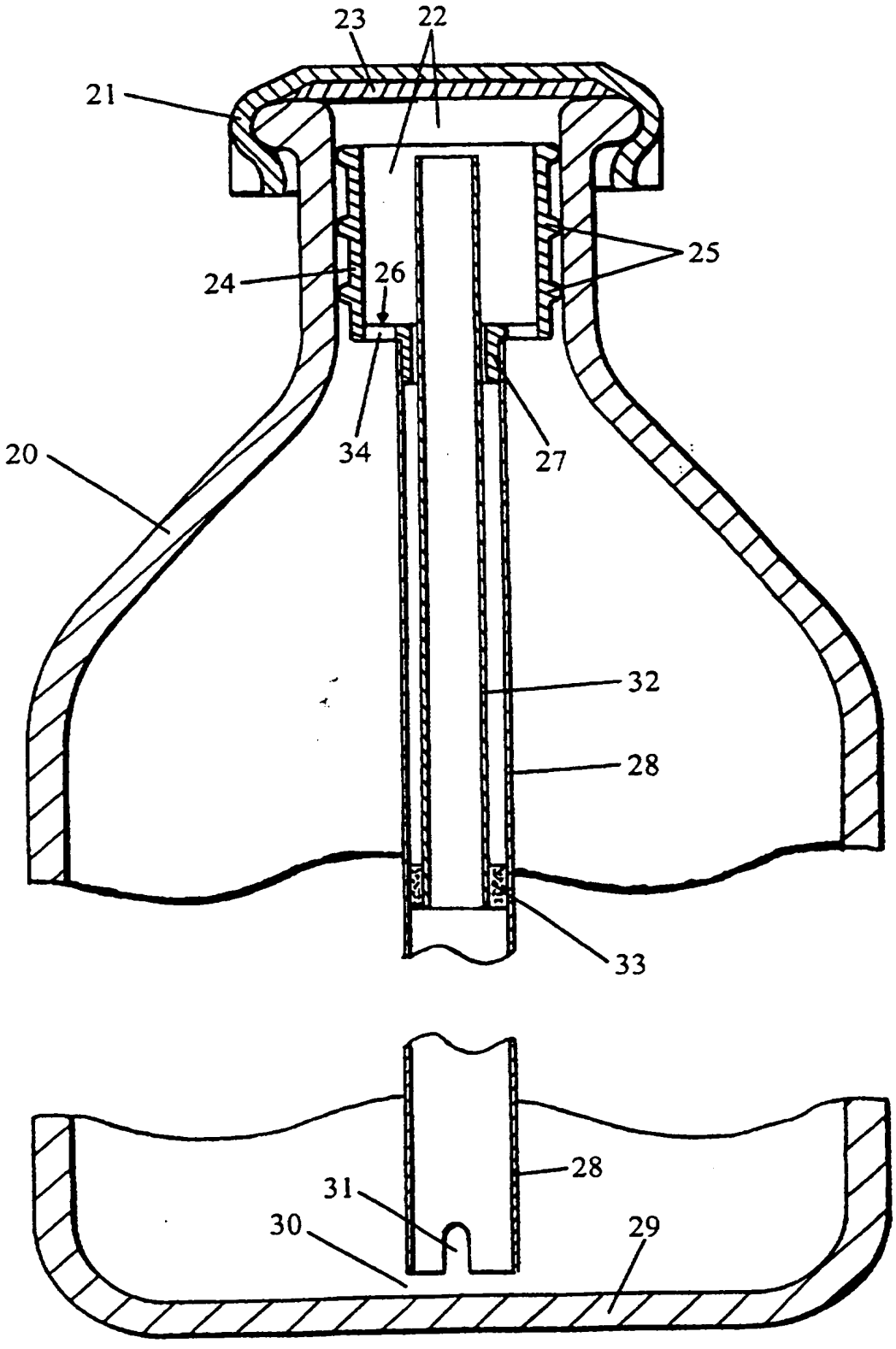

Fig. 1

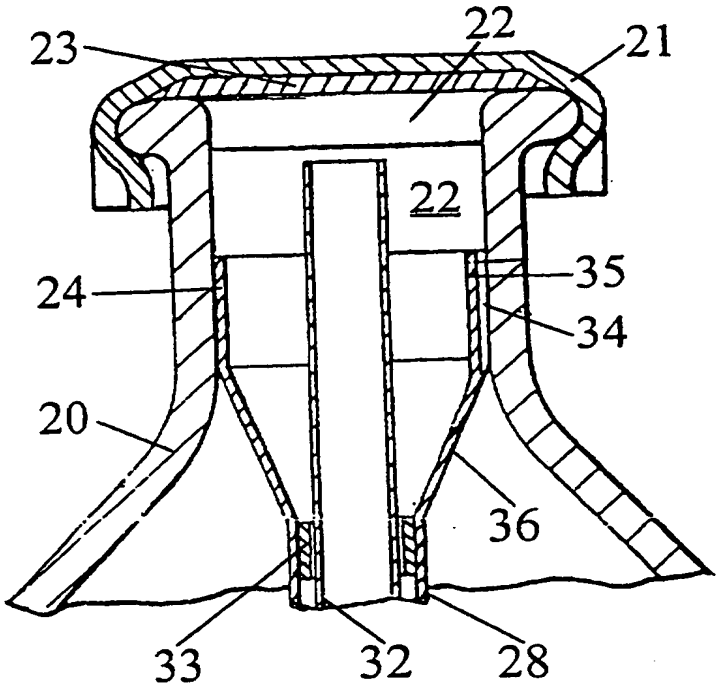

Fig.2.

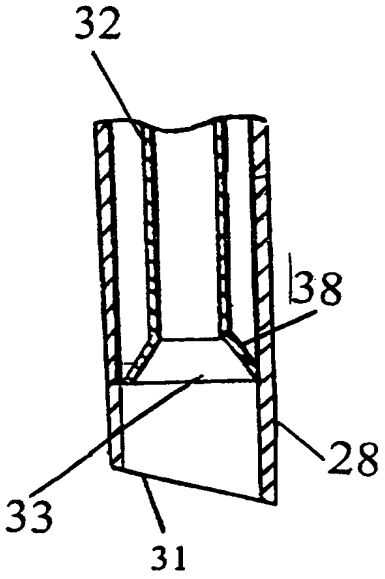

Fig.3.

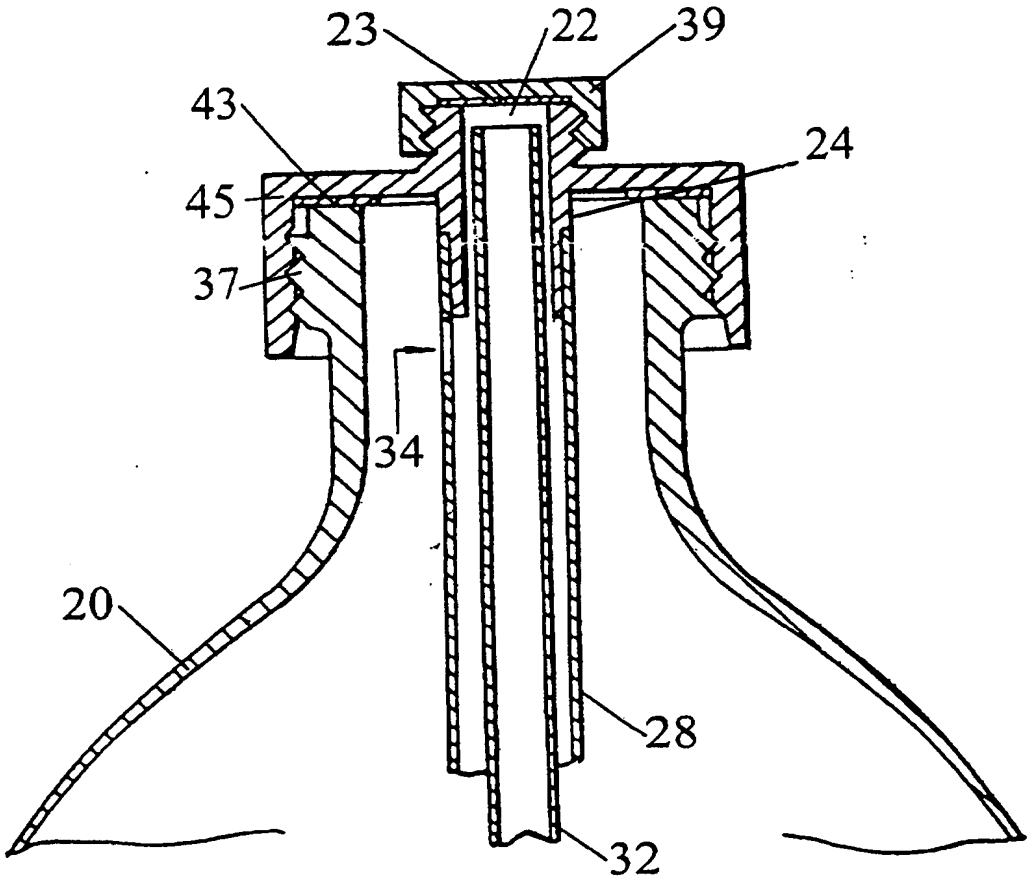

Fig.4.

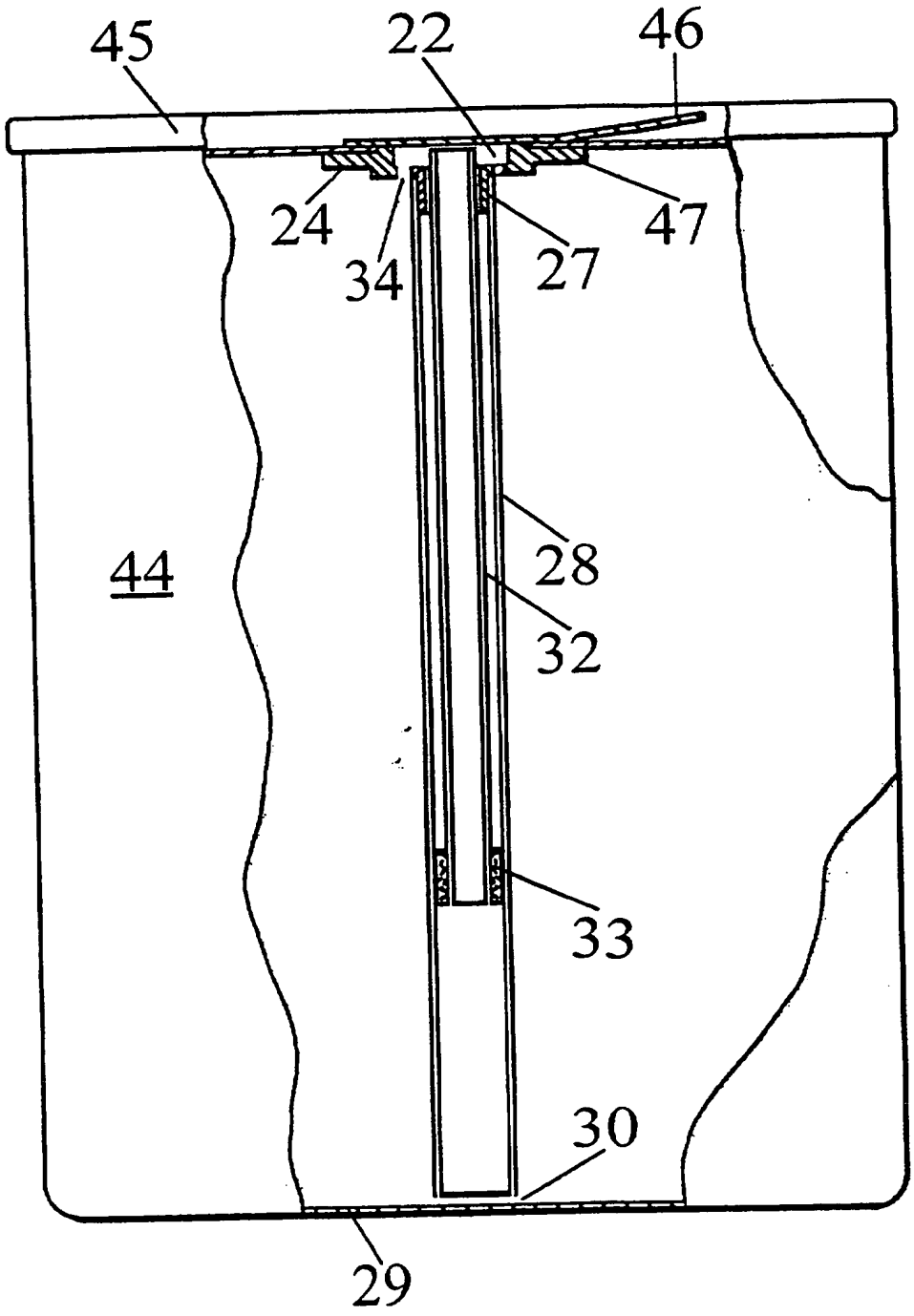

Fig.5.

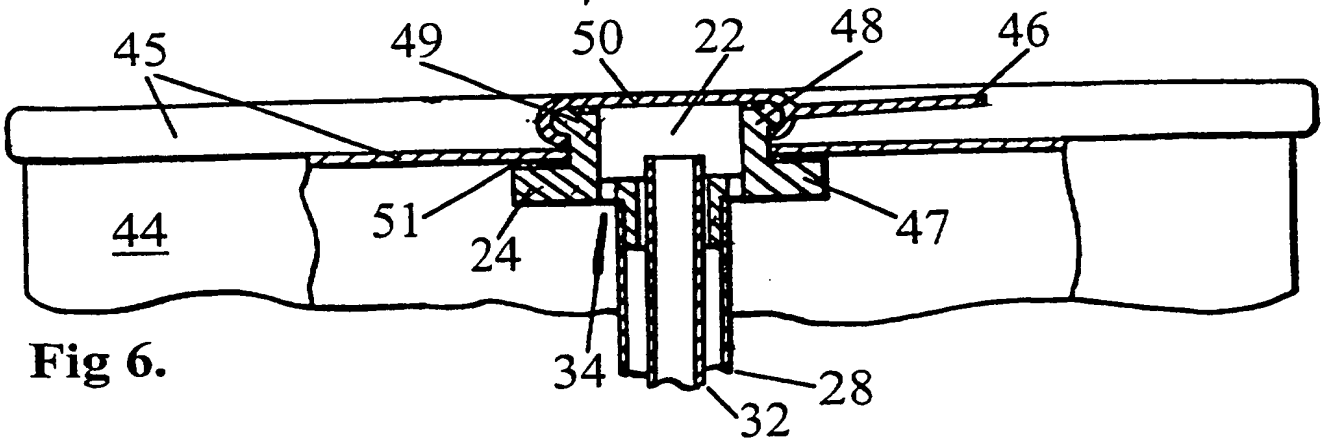

Fig 6.

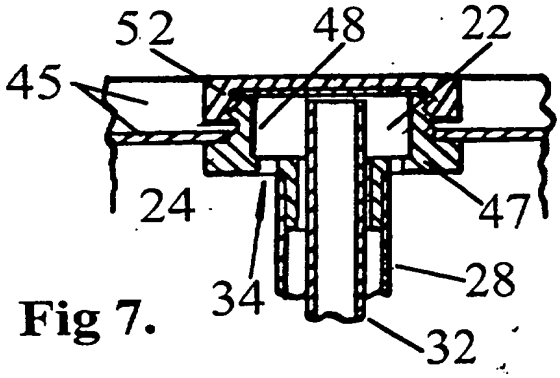

Fig 7.

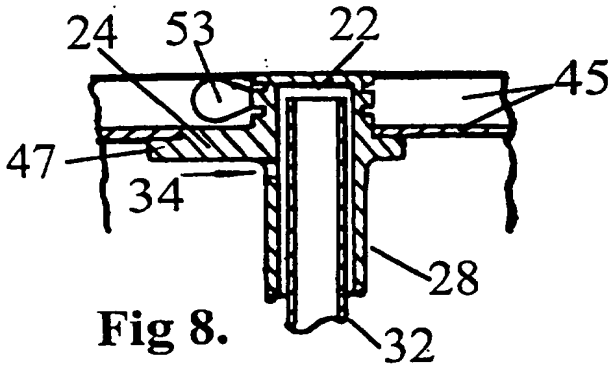

Fig 8.

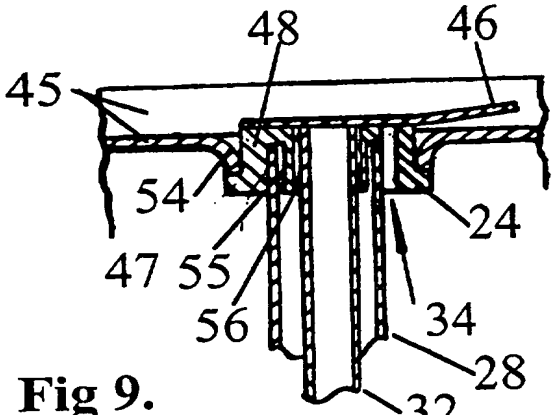

Fig 9.

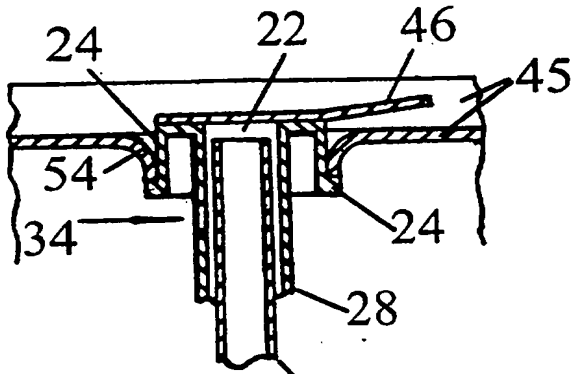

Fig 10.

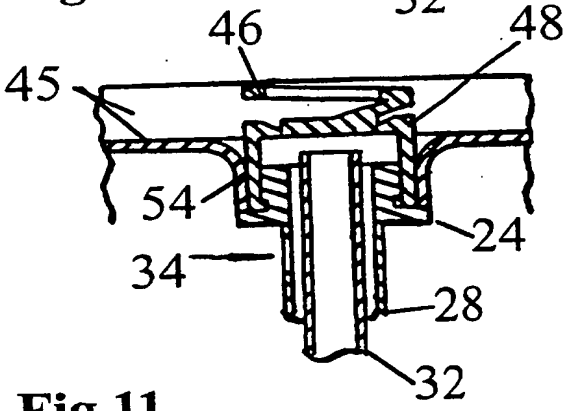

Fig 11.

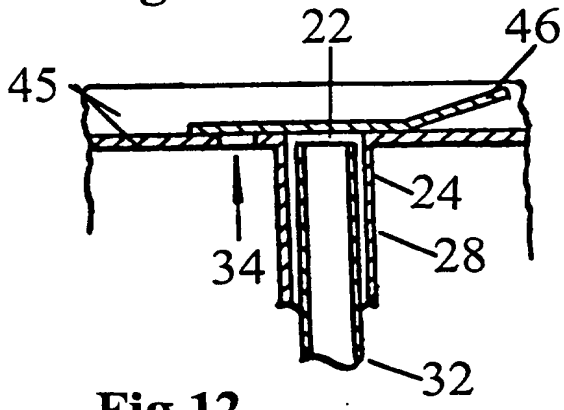

Fig 12.

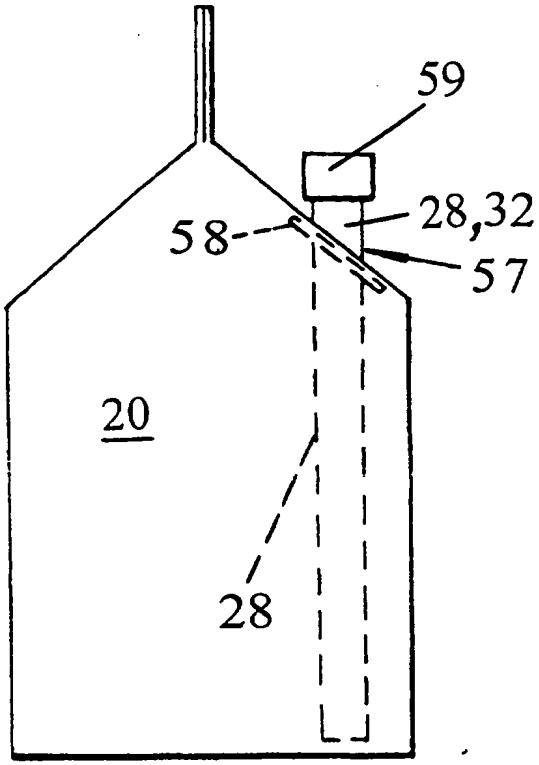

Fig.13.

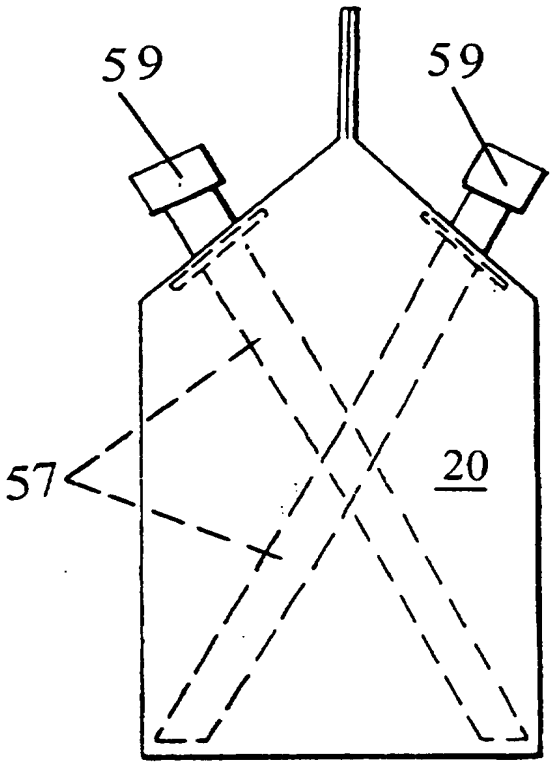

Fig.14.

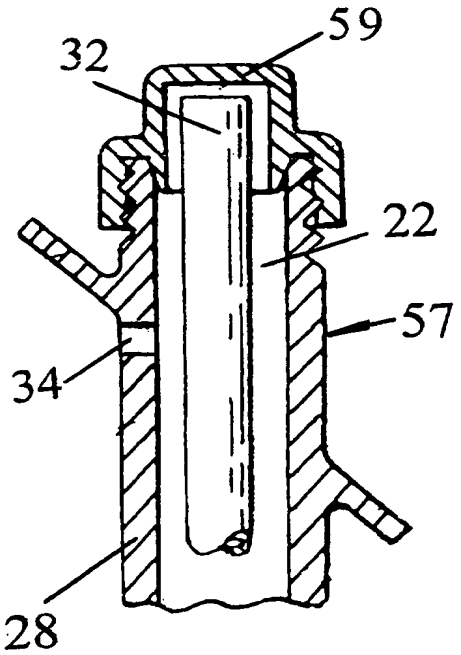

Fig.15.

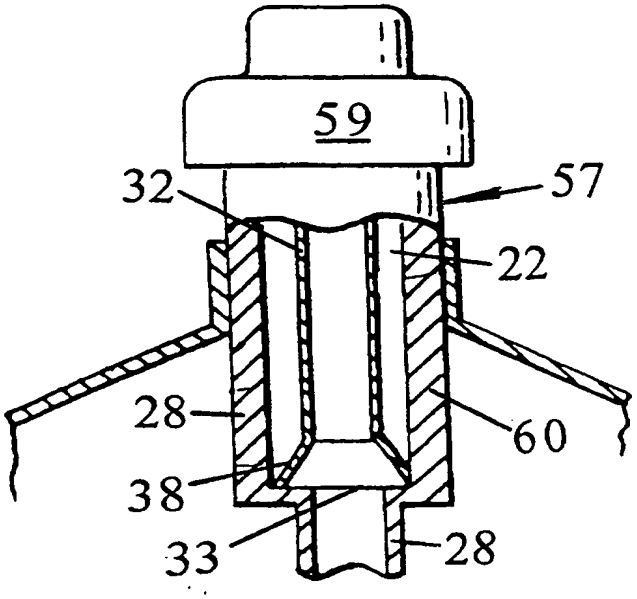

Fig.16.

STORAGE OF BEVERAGES

Field of the Invention

The present invention is concerned with the storage of beverages and more particularly with the provision of a beverage container and a method of accessing a beverage stored within a sealed container.

Background to the Invention

Beverages are stored in a various containers (such as cans, bottles, sachets and cartons) which are sealed by appropriate closure members for instance, ring-openers, tear strips, screw caps and crown caps. Where beverages are sold at premises in which they will normally be consumed, it is usual to provide drinking straws for use by the consumer. The straws are often stored on a counter and can become contaminated with dust or smoke. Furthermore, where straws are offered freely to the public, there is a risk of contamination by handling.

It has previously been proposed to manufacture a drink container with a drinking straw positioned and sealed within it. For instance, GB 1 043 287 teaches the provision of a drinks can in which a straw is retained in a non-deformed condition, and is accessible on opening a tear strip. GB 1 369 281 teaches the provision of a drinks can in which a flexible straw is retained in a flexed condition, and is released by opening a tear tab.

US 4 109 817 teaches that a beverage container can comprise a metal can having a closure member in the form of a pull-tab operable between a first position in which

the beverage is sealed inside the container and a second position in which an access aperture is opened to allow the beverage to be withdrawn from the container. A telescopically extensible drinking straw is positioned within the container and comprises an inner tubular member supported for axial extension through the opened access aperture by an outer tubular member which is carried by a fitting secured to the interior of the container. A sealing means is arranged between the outer and inner tubular members and is in the form of an outwardly flared annular portion at the bottom end of the inner tubular member. In this manner the sealing means ensures that the extended inner tubular member will draw beverage through the outer tubular member in preference to drawing air through the opened access aperture and between the annular space between the inner and outer tubular members. As the upper end of the telescopically extensible straw assembly is below the level of the access aperture when the closure member is first opened, the bottom end of the outer tubular member is secured to a float which lifts the entire straw assembly upwards until the top of the inner tubular member projects sufficiently through access aperture that it can be gripped to increase the operative length of the telescopic straw. To enable the float to raise the straw assembly, the outer tubular member is allowed to slide vertically upwards relative to the fitting by which it is carried from the interior of the container. The volume of the float wastes some of the potential capacity of the container. The freedom for vertical sliding of the entire straw assembly enables the bottom end of the outer tubular member to be raised above the level of the beverage when part of the beverage has been consumed whereby air is sucked rather than the residual beverage. Furthermore, the access aperture is excessively large and could permit ingress of detritus and particularly insects such as wasps.

An object of the present invention is to provide improved access to a beverage sealed in a container by a closure member.

Summary of the Invention

The invention is concerned with a beverage container of the known type that comprises a closure member operable between a first position in which the beverage is sealed inside the container and a second position in which an access aperture is opened to allow the beverage to be withdrawn from the container, a telescopically extensible drinking straw positioned within the container and comprising an inner tubular member supported for axial extension through the opened access aperture by an outer tubular member which is carried by a fitting secured to the interior of the container, and a sealing means arranged between the outer tubular member and the inner tubular member to ensure that the extended inner tubular member will draw beverage through the outer tubular member in preference to drawing air through the opened access aperture.

According to aspect of the invention the fitting secures the upper end of the outer tubular member to the interior of the container immediately adjacent the access aperture and holds the lower end of the outer tubular member in a position that will draw beverage from the bottom of the container, and the fitting is sealed to the interior of the container around the access aperture.

In the case where the beverage container comprises a bottle having a neck of which the end defines the access aperture and carries the closure member, the fitting is secured inside the neck of the bottle, and a vent permits communication between the access aperture and the interior of the bottle. The vent permits air to replace the

beverage as it is consumed and also serves to discharge excess gas from a carbonated beverage. Preferably the fitting has an integral mounting secured to the upper end of the outer tubular member. This integral mounting may be secured inside the upper end of the outer tubular member and also serves as guide for the upper end of the inner tubular member, the sealing means being carried by the lower end of the inner tubular member. This sealing means may be a sealing ring or an outwardly directed flange formed as part of the inner tubular member. This flange may be defined by an outward belling of the inner tubular member. Alternatively the sealing means may be carried by the outer tubular member at a position adjacent to the access aperture

The vent may be formed through the fitting, or be defined between the fitting and the neck of the bottle, or be positioned operatively between the sealing means and the access aperture, or be formed through the outer tubular member.

The fitting is preferably a push fit inside the neck of the bottle and may be formed integral with the outer tubular member. The fitting may be secured to a lid which is secured over the neck of the bottle and defines both an interior wall of the container and the access aperture. The use of a separately manufactured fitting for insertion into the neck of the bottle, or of a separately manufactured lid carrying the fitting, has the advantage of enabling a standard fitting, or lid with fitting, to be used on a range of bottles of differing shape or size.

In the case where the beverage container is a can sealed by a lid provided with the closure member, the fitting is secured inside the lid, and a vent permits communication between the access aperture and the interior of the can. The fitting preferably has a portion which is located in an aperture through the lid and defines the

access aperture. This aperture through the lid may have a flared lip directed into the container. The portion may be a push fit into the aperture through the lid, or be adhered within the aperture through the lid. The portion may be dimensioned so that it does not project beyond the upper surface of the lid and the closure member carried by the upper surface of the lid. This closure member may be a removable sealing strip adhered to the lid in a position covering the access aperture.

Alternatively the portion may be dimensioned to project above the upper surface of the lid and to carry the closure member.

The closure member may be a separate component, or a removable sealing strip adhered to the portion in a position covering the access aperture, or be formed integral with the portion which is provided with a weakened zone permitting removal of the closure member.

The fitting preferably has an integral flange bearing against the inside of the lid. This flange is preferably adhered to the inside of the lid. The fitting preferably has an integral mounting secured to the upper end of the outer tubular member. This integral mounting is preferably secured inside the upper end of the outer tubular member and also serves as a guide for the upper end of the inner tubular member, the sealing means being carried by the lower end of the inner tubular member.

The fitting may be formed integral with the outer tubular member.

The sealing means may be carried by the outer tubular member at a position adjacent to the access aperture.

The vent may be formed through the fitting, or be positioned operatively between the sealing means and the access aperture, or be formed through the outer tubular member.

The fitting may be formed integral with the lid. In this event the vent is preferably formed through the lid, and the closure member seals both the access aperture and the vent.

In the case where the beverage container comprises a rigid carton, the fitting is adhered to the inside of the carton and has a portion which extends through a wall of the carton to define the access aperture, the closure member is mounted on this portion to surround the access aperture, and a vent permits communication between the access aperture and the interior of the carton. The fitting is preferably formed integral with the outer tubular member. The vent is preferably formed through the outer tubular member adjacent the carton wall to which the fitting is attached.

In the case where the beverage container comprises a collapsible sachet, the fitting is adhered within a seam of the sachet and has a portion which extends through the seam to the exterior of the sachet to define the access aperture, the closure member is mounted on this portion to surround the access aperture, and the fitting is formed integral with the outer tubular member.

In the case where the beverage container is designed to enclose a carbonated beverage having a pressure greater than atmospheric pressure whereby removal of the closure member will apply the ambient pressure within the container to the effective area presented by the lower end of the inner tubular member, this effective area is designed to be sufficient to extend the inner tubular member through the access aperture when the closure member is opened. The sealing means may be carried by

the inner tubular member to contribute to the effective area. The size of the vent is preferably selected, in relation to the effective area and the ambient pressure within the container, to control the rate at which the inner tubular member will be extended.

Any of the beverage containers may be provided with a second outer tubular member extending within the container from the access aperture to a position adjacent the bottom of the container, the second inner tubular member being positioned coaxially within the second outer tubular member and supported for telescopic movement through the access aperture. In this manner the second outer and inner tubular members define a second telescopic straw which is sealed within the container until the access aperture is unsealed, the second straw also being extendable through the access aperture to enable two people can drink simultaneously from a single container. Alternatively a second outer tubular member may be provided to extend within the container from a second access aperture to a position adjacent the bottom of the container, another inner tubular member being positioned coaxially within the second outer tubular member and supported for telescopic movement through the second access aperture. In this manner the second outer and inner tubular members define a second telescopic straw which is sealed within the container until the second access aperture is unsealed, the second straw being extendable through the second access aperture to provide dual access to the beverage. With this alternative design the closure member, when in the first position, additionally seals the second aperture, and when in the second position additionally unseals the second aperture.

According to another aspect of the invention a method of accessing a carbonated beverage stored within a sealed container, comprises exposing an access aperture communicating with a telescopic tubular member stored prior to use within the container, and using the release of internal pressure to extend an inner portion of the telescopic tubular member through the aperture. This method may include opening a vent to limit the pressure available for extending the inner portion of the telescopic tubular member.

Brief Description of the Drawings

The invention will now be described, by way of example only, with reference to the accompanying drawings, in which :-

Figure 1 is a vertical section through a crown capped bottle provided with a drinking straw;

Figure 2 is a vertical section similar to the top of Figure 1 but illustrating a modification;

Figure 3 is a scrap vertical section illustrating an alternative seal formed at the lower end of the inner tubular member;

Figure 4 illustrates a modification of Figure 3;

Figure 5 is a vertical section through a can having a ring opener access to a drinking straw;

Figure 6 is an enlargement of the top of the can shown in Figure 5 but illustrating a different closure member;

Figures 7 to 12 are views, equivalent to the center portion of Figure 6, but illustrating a variety of different constructions;

Figure 13 is a side elevation of a carton provided with a straw;

Figure 14 is similar to Figure 13 but illustrates the provision of multiple straws;

Figure 15 is a vertical section through a flanged fitting suitable for use with the embodiments of Figures 13 and 14, and

Figure 16 illustrates the application of the invention to a sachet.

Detailed Description of the Illustrated Embodiments

With reference to Figure 1, a beverage container, in the form of a glass bottle 20, is provided with a closure member in the form of a crown cap 21. In the position shown, the crown cap 21 seals an access aperture 22 in the usual manner, a compressible sealing disc 23 being trapped between the crown cap 21 and the end of the neck of the bottle to prevent loss of gas or beverage from the interior of the bottle 20. The crown cap 21 can be removed, by use of a conventional bottle opener, to unseal the aperture and give access to the beverage. The access aperture 23 extends into the interior of a cylindrical fitting 24 which is a push-fit into the neck of the bottle, as shown, three peripheral lands 25 being compressed to create a seal against the neck of the bottle 20. The fitting 24 may conveniently be made from a moulded plastics material such as those already known for use as bottle closures or corks. An integrally moulded disk 26 connects the fitting 24 to a cylindrical mounting 27 which is a push fit inside the top of an outer tubular member 28 extending vertically downwards to a position adjacent to, but slightly spaced from the bottom 29 of the bottle 20. This leaves a gap

30 through which the beverage can flow into the outer tubular member 28. If desired, the bottom end of the outer tubular member 28 can be formed with one or more notches 31 to ensure adequate flow of the beverage. The use of notches 31 is particularly beneficial where the size of the gap 30 depends upon manufacturing or assembly tolerances. A telescopically extensible drinking straw is partially defined by an inner tubular member 32 which is positioned coaxially within the outer tubular member 28 and is supported by the cylindrical mounting 27 for telescopic movement through the access aperture 22 when it has been unsealed by removal of the crown cap 21. A sealing means, comprising an annular seal 33, is secured around the outer periphery of the inner tubular member 32 adjacent its lower end and is therefore positioned remote from the access aperture 22. In this manner the annular seal 33 is positioned operatively between the outer tubular member 28 and the inner tubular member 32 and serves both to prevent the ingress of air through the annular gap between the inner and outer tubular members when the access aperture is open, and as a stop to prevent the inner tubular member 28 from being completely drawn out of the cylindrical mounting 27. A series of vents 34 are formed through the moulded disc 26 to allow gas to pass between the interior of the bottle 20 and the access aperture 22. In this manner the outer tubular member 28 and the inner tubular member 32 form a telescopic drinking straw which is stored, prior to use, within the container and can be telescopically extended when the crown cap 21 is removed whereby the inner tubular member 32 can be used to suck beverage until the bottle 20 is substantially empty.

In the case where the bottle 20 is storing a carbonated beverage, removal of the crown cap 21 exposes the access aperture 22 with the result that the internal pressure within

the bottle 20 acts against the annular seal 33 and the lower end of the inner tubular member 32 which jointly serve as a piston to push the inner tubular member 32 upwardly out of the access aperture 22 for use. The vents 34 are selected to have a cross-sectional area that will provide a direct release of part of the internal pressure, thereby reducing the speed with which the drinking straw is extended and preventing the unintentional release of beverage through the straw due to excess pressure. The provision of these vents 34 also allows a flow of ambient air into the bottle 20 to replace liquid which has been sucked through the straw 28, 32.

In the case where the bottle 20 is storing an unpressurised beverage, removal of the crown cap 21 exposes the upper end of the inner tubular member 32, thereby allowing the exposed end to be gripped by finger and thumb and pulled away from the access aperture 22 for use. The vents 34 now serve to vent air through the unsealed aperture 22 into the bottle 20 to replace the liquid which has been sucked through the straw 28, 32.

In the description of Figures 2 to 16, the same reference numerals are used to identify the same, or equivalent features as have just been described with reference to Figure 1, and only additional features will be described.

In Figure 2 the cylindrical fitting 24 is of a different design and comprises a thin walled plastic moulding having a cylindrical portion 35 which is received as a push-fit against the internal wall of the bottle neck, as shown, and is connected by an integral frusto-conical portion 36 to the integrally-formed outer tubular member 28. In this

manner the fitting 24 also defines the outer tubular member 28. The vents 34 are formed as longitudinal grooves in the outer surface of the cylindrical portion 35 so that they are operatively positioned between the interior of the bottle and the aperture 22. The seal 33 has been moved so that it is positioned within, and adhered to, the inner wall of the outer tubular member 28, a slight working clearance being illustrated; this allows free movement of the inner tubular member 32 and serves as an additional or alternative vent. The seal 33 is in this manner carried by the outer tubular member 28 in a position adjacent to the aperture 22. In the event that this design is used with a carbonated beverage, the upwards force exerted on the inner tubular member 32 is much reduced as it only acts on the bottom end of the inner tubular member 32 and part of the gas pressure is additionally vented through the working clearance between the seal 33 and the outer wall of the inner tubular member 32. If it is desired to prevent removal of the inner tubular member 32, a small protuberance may be pressed into its side wall at an appropriate level below the seal 33. This construction can be modified in various ways, for instance the frusto-conical portion 36 could be formed separate from the outer tubular member 28, but could be formed integral with a cylindrical mounting 27, as shown in Figure 1, and the cylindrical mounting 27 could be extended radially inwards to define the seal 33.

Figure 3 illustrates an alternative construction of the sealing means 33 which comprises an outwardly directed flange 38 formed as an integral part of the inner tubular member 32. The flange 38 is conveniently formed by outward belling of the lower end of the inner tubular member 32.

In Figure 4 the bottle 20 is of expanded oriented plastic, for storing a carbonated beverage, and has a moulded neck defining external threads 37. The closure member is a moulded plastics screw cap 39 which engages external threads 41 formed on a lid 45 which is formed integral with the fitting 24 and has larger internal threads engaging the external threads 37 of the bottle 20. The screw cap 39, and/or the lid 45, may be provided, on its lowermost edge, with a frangible ring, or other frangible device, to indicate whether or not the bottle has been opened. A seal 43 is positioned between the fitting 24 and the neck of the bottle 20. The vent 34 is positioned through the outer tubular member 28 adjacent to the aperture 22, and the unshown sealing means 33 is carried by the lower end of the inner tubular member 32 as described with reference to Figure 1 or 3. When used with a carbonated beverage, the screw cap 39 is unscrewed thereby releasing internal pressure which causes the inner tubular member 32 to be pressed upwards with excess pressure being dissipated to atmosphere through vent 34 which subsequently serves to vent atmosphere into the bottle 20 as the beverage is removed. If the beverage is not completely consumed the inner tubular member 32 can be pushed back into the access aperture 22 and the screw cap 39 replaced. With this design the lid 45 is only unscrewed to fill the bottle 20 with beverage, or to permit the beverage to be poured out. If desired, the screw threads 37 between the bottle 20 and the lid 45 may be omitted, the lid 45 being permanently, or semi-permanently, secured to the neck of the bottle 20. For instance, the flange of the lid 45 defining the threads 37 could be replaced by an aluminium ring having its upper edge swaged onto the cylindrical flange of the lid 45, and its lower edge swaged over an inner flange formed integral with the bottle 20. When used for a non-carbonated beverage, the screw cap 39 is preferably modified, as

shown in Figure 15, so that the inner tubular member 32 can be arranged to extent out of the access aperture 22 thereby enabling it to be pulled out.

Figure 5 shows the application of the invention to a beverage container in the form of a deep-drawn aluminium can 44 sealed by a swaged lid 45 which is provided with a closure member in the form of a ring opener 46 defined by a tear strip adhered to the lid 45 to cover the access aperture 22. The cylindrical fitting 24 is formed from a food grade plastics material to define the access aperture 22 and the cylindrical mounting 27 for the outer tubular member 28. The cylindrical fitting 24 is located in an aperture formed in the lid 45, as shown, and has an integral flange 47 adhered to the underside of the lid 45 either using an adhesive or by otherwise bonding the abutting surface of the flange 47 and the lid 45. Alternatively, the cylindrical fitting 24 may be an interference fit through the aperture in the lid 45. This design of cylindrical fitting 24 is secured to the lid 45 before it is inserted into the liquid filled can 44 and swaged in position. The design of the cylindrical fitting 24 may be altered to permit its mounting to the lid 45 after the lid has been swaged in position; for instance, the fitting 24 may have a portion that will snap into the aperture in the lid 45, or may be adhered thereto. The closure member 46 could also be modified so that it will tear away from the fitting 24. When the can 44 is used to store a carbonated beverage, release of the closure member 46 exposes the aperture 22 to allow the straw 28,32 to be extended by the internal pressure as already described. Alternatively, when the can 44 is used to store a still beverage, the design of the fitting 24 permits the end of the inner tubular member 32 to be gripped as before and to be drawn outwardly to an operative position.

With the modification illustrated by Figure 6, the cylindrical fitting 24 has a tubular neck 48 which is a push-fit through the aperture in the lid 45, so that an integral external annular flange 49 is positioned above the top of the lid 45 to engage a resilient cap 50 formed integral with the closure member 46. A resilient sealing ring 51 may be positioned between the flange 47 and the lid 45.

In Figure 7, the tubular neck 48 is provided with an external thread, as shown, and the closure member is in the form of a screw cap 52 which may, if desired, be provided with a frangible sealing ring.

In Figure 8, the cylindrical fitting 24 is moulded integral with both the outer tubular member 28 and the closure member, which is in the form of a tear strip 53. It should be noted that the flange 47 is eccentric relative to the outer tubular member 28 so that the tear strip 53 can be inserted through the aperture in the lid 45, and that removal of the tear strip 53 will leave the upper end of the inner tubular member 32 projecting out of the access aperture 22 to facilitate it being pulled out if the beverage is non-carbonated.

In Figure 9, the aperture in the lid 45 is formed with a downwardly flared lip 54 which seals against the flange 47, leaving the tubular neck 48 projecting to a level slightly above the surface of the lid 45 where it is sealed by the closure member which is in the form of a tear strip 46. In this manner the tear strip is protected by being positioned below the swaged edge of the lid 45. With this construction the cylindrical

fitting 24 may be adhered to the flared lip 54, or may be an interference fit therein. Such interference fit may be enhanced by pressing the flange 47 against the flared lip 54 until the latter starts to be deformed inwardly to grip the fitting 24, thereby forming a tight seal. Instead of locating the outer tubular member 28 over a cylindrical mounting as taught in Figures 6 and 7, the outer tubular member is secured within a recess 55 within the cylindrical fitting 24, which has a coaxial annular flange 56 to guide the inner tubular member 32. The vent 34 passes through the cylindrical fitting, as shown, to a point spaced to one side of the access aperture where it is sealed by the tear strip 46. With the vent 34 in the illustrated position, the action of removing the tear strip 46 will open the vent 34 slightly before the access aperture 22 is uncovered, thereby achieving release of some of the internal gas pressure before the inner tubular member 32 can be extended. This feature is useful for those applications in which the internal gas pressure is likely to be too strong for extending the inner tubular member 32. On the other hand, if the internal gas pressure is not too strong, the vent 34 may be repositioned so that it is uncovered after the access aperture 22 has been uncovered, thereby allowing the inner tubular member to be extended before excess pressure is relieved.

Figure 10 is a modification of the design shown in Figure 9, the outer tubular member 28 being formed integral with the cylindrical fitting 24, and the vent being repositioned to allow gas to pass in either direction between the interior and exterior of the can through the access aperture 22 after the tear strip 46, or other closure member, has been removed.

Figure 11 shows a modification of the design shown in Figure 8, the ring opener 46 being moulded as part of a separate component which defines the tubular neck 48 and is a clip fit into a groove formed around the cylindrical fitting 234 as shown. This assembly is a press fit between the downwardly flared lip 54, adhesive being used as necessary.

In Figure 12, the lid 45 is formed integral with the outer tubular member 28. This form of construction is practicable when the lid 45 is a moulding of plastics material.

Figure 13 illustrates the application of the invention to a beverage container in the form of a cardboard carton 20 for storing a non-pressurised liquid such as milk or fruit juice. The straw 28, 32 is arranged in a fitting 57 which is moulded from a food grade plastic and has the features which will be described with reference to Figure 15. The fitting 57 extends downwardly as shown to a position very close to the bottom of the carton 20 and has an integral flange 58 which abuts the inside surface of the carton 20 and is adhered thereto by an adhesive or by bonding the material of the flange to a compatible coating of the cardboard forming the carton 20. The fitting 20 is opened or closed by a screw cap 59.

Figure 14 illustrates a modification of Figure 13, having a pair of the fittings 57 mutually inclined relative to the carton 20. This configuration enables the drink within the carton 20 to be shared. This feature can, of course, be applied to any of the other constructions herein described.

Figure 15 illustrates the fitting 57 in greater detail. It will be noted that removal of the screw cap 59 exposes the end of the inner tubular member 32 which can be gripped by the fingers to effect its extension. An unshown vent, with the same function as vent 34, would be formed through the wall of the outer tubular member 28 to allow the passage of ambient air into the carton 20 to replace the fluid withdrawn.

Figure 16 illustrates an alternative construction of the fitting 57 for use with a beverage container in the form of a sachet 20. The fitting 57 has a cylindrical body 60 which is sealed in a seam in the sachet 20 as shown, the components being adhered together to make the sachet 20 leak proof. Although the inner tubular member 32 could be as long as required, it is shown much shorter than hitherto, the annular seal 33 being defined by an integral part of the inner tubular member 32 which has been flared outwardly, in the same manner as described with reference to Figure 3, to provide a frusto-conical flange sealingly engaging the bore of the outer tubular member 28, 60. This frusto-conical flange provides an excellent seal if it is correctly dimensioned and could of course be utilised with any of the previous embodiments. As the sachet 20 is essentially collapsible, there is no need to provide any vent.

CLAIMS.

1. A beverage container comprising a closure member operable between a first position in which the beverage is sealed inside the container and a second position in which an access aperture is opened to allow the beverage to be withdrawn from the container, a telescopically extensible drinking straw positioned within the container and comprising an inner tubular member supported for axial extension through the opened access aperture by an outer tubular member which is carried by a fitting secured to the interior of the container, a sealing means arranged between the outer tubular member and the inner tubular member to ensure that the extended inner tubular member will draw beverage through the outer tubular member in preference to drawing air through the opened access aperture, the upper end of the outer tubular member being secured by the fitting to the interior of the container immediately adjacent the access aperture, the lower end of the outer tubular member being held by the fitting in a position that will draw beverage from the bottom of the container, and the fitting being sealed to the interior of the container around the access aperture.

2. A beverage container, according to Claim 1 and comprising a bottle having a neck of which the end defines the access aperture and carries the closure member, in which the fitting is secured inside the neck of the bottle, and a vent permits communication between the access aperture and the interior of the bottle.

3. A beverage container, according to Claim 2, in which the fitting has an integral mounting secured to the upper end of the outer tubular member.

4. A beverage container, according to Claim 3, in which the integral mounting is secured inside the upper end of the outer tubular member and also serves as guide for

the upper end of the inner tubular member, and the sealing means is carried by the lower end of the inner tubular member.

5. A beverage container, according to any of Claims 2 to 3, in which the sealing means is carried by the outer tubular member at a position adjacent to the access aperture.

6. A beverage container, according to any of Claims 2 to 5, in which the vent is formed through the fitting.

7. A beverage container, according to any of Claims 2 to 5,in which the vent is defined between the fitting and the neck of the bottle.

8. A beverage container, according to any of Claims 2 to 5, in which the vent is positioned operatively between the sealing means and the access aperture

9. A beverage container, according to Claim 8, in which the vent is formed through the outer tubular member.

10. A beverage container, according to any of Claims 2 to 9, in which the fitting is a push fit inside the neck of the bottle,

11. A beverage container, according to Claim 10, in which the fitting is formed integral with the outer tubular member.

12. A beverage container, according to any of Claims 2 to 10, in which the fitting is secured to a closure member which defines both an interior wall of the container and the access aperture.

13. A beverage container, according to Claim 1 and comprising a can sealed by a lid provided with the closure member, in which the fitting is secured inside the lid, and a vent permits communication between the access aperture and the interior of the can.

14. A beverage container, according to Claim 13, in which the fitting has a portion which is located in an aperture through the lid and defines the access aperture.

15. A beverage container, according to Claim 14, in which the aperture through the lid has a flared lip directed into the container.

16. A beverage container, according to Claim 14 or 15, in which the portion is a push fit into the aperture through the lid.

17. A beverage container, according to Claim 14 or 15, in which the portion is adhered within the aperture through the lid.

18. A beverage container, according to any of Claims 14 to 17, in which the portion does not project beyond the upper surface of the lid and the closure member is carried by the upper surface of the lid.

19. A beverage container, according to Claim 18, in which the closure member is a removable sealing strip adhered to the lid in a position covering the access aperture.

20. A beverage container, according to any of Claims 14 to 17, in which the portion projects above the upper surface of the lid and carries the closure member.

21. A beverage container, according to Claim 20, in which the closure member is a separate component.

22. A beverage container, according to Claim 20, in which the closure member is a removable sealing strip adhered to the portion in a position covering the access aperture.

23. A beverage container, according to Claim 20, in which the closure member is formed integral with the portion which has a weakened zone permitting removal of the closure member.

24. A beverage container, according to any of Claims 13 to 23, in which the fitting has an integral flange bearing against the inside of the lid.

25. A beverage container, according to Claim 24, in which the flange is adhered to the inside of the lid.

26. A beverage container, according to any of Claims 13 to 25, in which the fitting has an integral mounting secured to the upper end of the outer tubular member.

27. A beverage container, according to Claim 26,in which the integral mounting is secured inside the upper end of the outer tubular member and also serves as a guide for the upper end of the inner tubular member, and the sealing means is carried by the lower end of the inner tubular member.

28. A beverage container, according to any of Claims 13 to 25, in which the fitting is formed integral with the outer tubular member.

29. A beverage container, according to any of Claims 13 to 26, in which the sealing means is carried by the outer tubular member at a position adjacent to the access aperture.

30. A beverage container, according to any of Claims 13 to 29, in which the vent is formed through the fitting.

31. A beverage container, according to any of Claims 13 to 29, in which the vent is positioned operatively between the sealing means and the access aperture.

32. A beverage container, according to Claim 31, in which the vent is formed through the outer tubular member.

33. A beverage container, according to Claim 13, in which the fitting is formed integral with the lid.

34. A beverage container, according to Claim 33, in which the vent is formed through the lid, and the closure member seals both the access aperture and the vent.

35. A beverage container, according to Claim 1 and comprising a rigid carton, in which the fitting is adhered to the inside of the carton and has a portion which extends through a wall of the carton to define the access aperture, the closure member is mounted on this portion to surround the access aperture, and a vent permits communication between the access aperture and the interior of the carton..

36. A beverage container, according to Claim 35, in which the fitting is formed integral with the outer tubular member.

37. A beverage container, according to Claim 35 or 36, in which the vent is formed through the outer tubular member adjacent the carton wall to which the fitting is attached.

38. A beverage container, according to Claim 1 and comprising a collapsible sachet, in which the fitting is adhered within a seam of the sachet and has a portion which extends through the seam to the exterior of the sachet to define the access aperture, the closure member is mounted on this portion to surround the access aperture, and the fitting is formed integral with the outer tubular member.

39. A beverage container, according to any of Claims 2 to 38, in which the container is designed to enclose a carbonated beverage having a pressure greater than atmospheric pressure whereby removal of the closure member will apply the ambient pressure within the container to the effective area presented by the lower end of the inner tubular member, and this effective area is designed to be sufficient to extend the inner tubular member through the access aperture when the closure member is opened.

40. A beverage container, according to Claim 38, in which the sealing means is carried by the inner tubular member to contribute to the effective area.

41. A beverage container, according to Claim 39 or 40, in which the size of the vent is selected, in relation to the effective area and the ambient pressure within the container, to control the rate at which the inner tubular member will be extended.

42. A beverage container, according to any preceding claim, in which a second outer tubular membe extends within the container from the access aperture to a position adjacent the bottom of the container, and second inner tubular member is positioned coaxially within the second outer tubular member and is supported for telescopic movement through the access aperture.

43. A beverage container, according to any of Claims 1 to 41, in which a second outer tubular member extends within the container from a second access aperture to a position adjacent the bottom of the container, and another inner tubular member is positioned coaxially within the second outer tubular member and is supported for telescopic movement through the second access aperture.

44. A beverage container, according to Claim 43, in which the closure member when in the first position additionally seals the second aperture, and when in the second position additionally unseals the second aperture.

45. A beverage container constructed and arranged substantially as described herein with reference to any of the accompanying drawings.

46. A method of accessing a carbonated beverage stored within a sealed container, comprising exposing an access aperture communicating with a telescopic tubular member stored prior to use within the container, and using the release of internal

pressure to extend an inner portion of the telescopic tubular member through the aperture.

47. A method, according to Claim 46, including opening a vent to limit the pressure available for extending the inner portion of the telescopic tubular member.

48. A method of accessing a beverage stored within a sealed container substantially as described herein with reference to any of he accompanying drawings.

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Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.7): A47G 19/22 21/18 B65D 77/28

Other: ONLINE:WPI,EPODOC,JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 598612	(PREARIS) (Whole disclosure relevant)	1 & 35 to 37
X	WO 97/17270A1	(CARUBINI) (Figs 1-3 and corresponding description particularly relevant)	1,13 & 39
X	US 5823422	(COLLIER et al) (Whole disclosure relevant)	1,35 & 36

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